

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The rejection of claims 4, 5, 7 and 9 under 35 U.S.C. §102 as allegedly anticipated by Kanda '904 is respectfully traversed.

Kanda teaches an energy storage device whereby inexpensive nighttime electric power can be used to refrigerate an antifreeze solution and to freeze water or other liquid in containers which float within the refrigerated antifreeze solution.

By contrast, the applicant seeks to reduce evaporation of fuel in a fuel storage tank. The structure, function and purpose of Kanda are radically different from that of the applicants' claimed invention.

Amended claim 4 requires a plurality of containers, each containing heat storage material and arranged on the liquid surface of stored fuel with buoyancy. Since evaporation of the fuel mainly occurs on the liquid surface, and since the liquid surface of the fuel is now both partially obscured and efficiently cooled, fuel evaporation can be suppressed. The liquid surface is preferably substantially covered by the heat storage material, and the contact area between stored fuel and the air above the liquid surface is thus decreased, further suppressing evaporation of the fuel.

Kanda teaches that a part of heat storage material containers is positioned at the liquid surface of an antifreeze solution by buoyancy, but does not suggest that the heat storage material be arranged on or near the liquid surface (e.g., because most of the container is under water). Further, the container has a weight 6 on its bottom so as to maintain the position of the container sunk deeply under water – which is where one would want them to be for maximized heat transfer to the refrigerated antifreeze solution.

By contrast, applicants' invention suppresses fuel evaporation, especially from the liquid air surface, by obscuring and localized cooling in the vicinity of the liquid surface. Kanda's objective is to freeze the entirety of the liquid container by submersing it in the refrigerated antifreeze solution. Therefore, the Kanda features are quite different from those of the applicants' claimed invention.

New claim 10 depends from amended claim 4 and requires the containers arranged on the liquid surface to be spherically shaped. The spherically shaped containers can be more easily prevented from sinking deeply under the liquid surface. Further, the container surface areas can be more effectively used for heat exchange in the vicinity of the liquid surface.

By contrast, while Kanda teaches that a part of the heat storage material may be positioned at the liquid surface of an antifreeze solution by buoyancy, the Kanda container is formed in the shape of a long rod. Accordingly, most of the container sinks

deeply under the liquid surface – which surface, therefore, cannot be efficiently cooled in any localized way. Indeed, Kanda stores latent heat energy by transferring heat away from the containers and into the refrigerated antifreeze solution (i.e., to freeze the water or other liquid therewithin).

New dependent claim 10 further requires flexible linkage between at least some of the containers organizing them into a regularized arrangement on the liquid fuel surface.

The rejection of claim 6 under 35 U.S.C. §103 as allegedly being made “obvious” based on Kanda in view of Foley ‘735 is also respectfully traversed.

Fundamental deficiencies of Kanda have already been noted above with respect to parent claim 4. Foley does not supply those deficiencies. Accordingly, it is not believed necessary at this time to consider the Examiner’s proposal for installing an inlet and outlet in the Kanda tank 10. Suffice it to note that Kanda surely does not include any such suggestion and, instead, seems to suggest that the antifreeze solution is circulated within the tank 10.

The rejection of claim 8 under 35 U.S.C. §103 as allegedly being made “obvious” based on Kanda in view of Takeda ‘632 is also respectfully traversed.

Once again, fundamental deficiencies of Kanda have already been noted above with respect to parent claim 4. Takeda does not supply those deficiencies. Accordingly,

Noriyasu AMANO, *et al.*
Serial No. 10/825,201
July 7, 2008

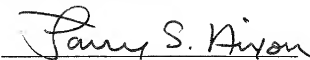
it is not believed necessary at this time to discuss the deficiencies of this allegedly "obvious" combination of references in further detail.

Attention is also directed to new method claims 12-16, which will be seen to be analogous to apparatus claims 4, 6, 8, 10 and 11, respectively. These claims are also believed to be patentably distinct from Kanda.

Accordingly, it is believed that this entire application is now in allowable condition, and a formal notice to that effect is respectfully solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
Larry S. Nixon
Reg. No. 25,640

LSN:lef

901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100